



# FBI Laboratory

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## LABORATORY REPORT

To: Wade N Mutchler  
Portland

Date: June 24, 2016

Case ID No.: 266S-PD-7399931

Lab No.: 2016-01388-4

Communication(s): May 10, 2016; May 25, 2016

Agency Reference(s):

Subject(s): John Martin Roos

Victim(s): Barack Hussein Obama

Discipline(s): Explosives Device

FBI Laboratory Evidence Designator(s):

Item 1 Gray Powder (1B43, E5660085)  
Item 2 Gray Powder (1B44, E5660084)  
Item 3 Gray Powder (1B45, E5660083)  
Item 4 Gray Powder (1B46, E5634292)  
Item 10 Metal Pipe, two end caps, metal weights, and fishing hooks (1B39, E5660089)  
Item 10-1 Fifteen pieces of tape removed from Item 10 (1B39, E5660089)  
Item 10-2 Green Fuse (1B39, E5660089)  
Item 10-2-1 Powder (1B39, E5660089)  
Item 10-3 Thirteen screws (1B39, E5660089)  
Item 11 Metal Pipe, two end caps, and metal weights (1B40, E5660088)  
Item 11-1 Eight pieces of tape removed from Item 11 (1B40, E5660088)  
Item 11-2 One piece of tape removed from Item 11 (1B40, E5660088)  
Item 11-3 One piece of tape removed from Item 11 (1B40, E5660088)  
Item 11-4 Green Fuse (1B40, E5660088)  
Item 11-4-1 Powder (1B40, E5660088)  
Item 11-5 One piece of clear plastic (1B40, E5660088)



Item 12	Metal Pipe, two end caps, and metal weights (1B41, E5660087)
Item 12-1	Three pieces of tape removed from Item 12 (1B41, E5660087)
Item 13	Metal Pipe and two end caps (1B42, E5660086)
Item 13-1	Seven pieces of tape removed from Item 13 (1B42, E5660086)
Item 13-2	Green Fuse (1B42, E5660086)
Item 13-2-1	Powder (1B42, E5660086)
Item 13-3	One piece of tissue (1B42, E5660086)
Item 14	Trace - Hairs/Fibers Secondary Evidence (9 slides)
Item 15	Green Fuse (1B78, E5865585)
Item 15-1	Powder (1B78, E5865585)
Item 16	Green Fuse (1B79, E5865586)
Item 16-1	Powder (1B79, E5865586)
Item 17	Green Fuse (1B80, E5865587)
Item 17-1	Powder (1B80, E5865587)
Item 18	Chemistry-General Secondary Evidence (4 pillboxes)
Item 20	DCU Secondary Evidence (6 tubes)

This report contains the final results of the hazardous device examinations performed in the Explosives Unit.

#### **Administrative:**

On May 2, 2016, FBI Special Agent Bomb Technician Wade Mutchler conducted render-safe procedures on four (4) suspected pipe bombs. A render-safe procedure (RSP) uses tools remotely to break apart a suspected live device thereby making it safe to handle.

#### **Conclusion:**

It is the opinion of this Explosives and Hazardous Devices Examiner that present in the submitted specimens are the fragmented remains of four (4) Improvised Explosive Devices (IEDs), also referred to as destructive devices or pipes bombs. Properly assembled and initiated, these IEDs are capable of causing damage to property or injury/death to personnel.

Each of these IEDs consisted of a sealed metal pipe containing a low explosive main charge. When properly ignited by a suitable source of heat, low explosives are designed to deflagrate and generate gases. Within a confinement container, such as a pipe, these gases create large amounts of pressure on the container walls and cause an explosion of the container. This explosion would result in fragments of the container being propelled outwards at high velocities.

Three (3) of these IEDs also had additional hardened objects added as shrapnel. As with the fragments of the container, the added shrapnel would have also been propelled outwards at high velocities as a result of the explosion. Added shrapnel serves to enhance the ability of an IED to impart physical damage to the surroundings or injure/kill personnel.

## **Results of Examination**

### **Improvised Explosive Device #1**



*Fig.1 Item 10 IED#1 as received*

#### **Main Charge:**

Item 1 was identified as the low explosive Pyrodex. Pyrodex is a commercially available ammunition propellant. For detailed information on the chemical analysis conducted on Item 1, see the FBI Laboratory Report for Laboratory number 2016-01388-3, dated June 21, 2016, and authored by Robert Gillette. (RG)

#### **Main Charge Container:**

Present in Item 10 is a length of metal pipe nipple measuring approximately 4 inches long and having a nominal diameter of 1-1/4 inches. Manufacturer markings on the outside of the pipe nipple include the symbol used by Mueller Industries and the following:

“NSF61-4/LF”  
“CHINA”

The website for Mueller Industries ([www.muellerindustries.com](http://www.muellerindustries.com)) indicates that this company is a manufacturer and distributor of a variety of products to include plumbing materials.

Present in the threaded portion of the pipe nipple is a hole measuring approximately 0.14 inch in diameter. This hole, commonly referred to as a priming hole, is a modification made to the pipe to allow for the insertion of the fusing system into the container.

Also present in Item 10 are two (2) metal end caps. One (1) end cap was received still attached to the pipe nipple. Manufacturer markings on both end caps include the symbol used by Mueller Industries and the following:

“1 1/4”  
“CHINA”

An off-white substance was present in the threads of Item 10. Chemical analysis of this substance revealed a combination of chemicals/elements that are found in some pipe joint compounds. For detailed information on the chemical analysis conducted on Item 10, see the FBI Laboratory Report for Laboratory number 2016-01388-14, dated June 7, 2016, and authored by Jason D. Brewer, PhD . (JDB)

Pipe joint compound is typically applied to threaded pipe to provide a water or air tight seal. This compound would have also initially acted as lubricant between the pipe nipple and the end caps during assembly.

#### Fuzing System:

Present in Item 10-2 is a piece of green hobby fuse measuring approximately 6.0 inches in length. Present in Item 15 is a small length of hobby fuse cut from this device by the bomb technician. The purpose of hobby fuse is to initiate a low explosive main charge by transmitting a flame front down the fuse length to the low explosive main charge.

Chemical analysis on the powders removed from Items 10-2 and 15 (Items 10-2-1 and 15-1 respectively) identified the low explosive mixtures of potassium perchlorate (oxidizer) and a component consistent with charcoal (fuel). For detailed information on the chemical analysis conducted on Items 10-2-1 and 15-1, see the FBI Laboratory Report for Laboratory number 2016-01388-3, dated June 21, 2016, and authored by Robert Gillette. (RG)

Hobby fuse burns at a nominal rate of 15 to 25 seconds per foot. The length of hobby fuse in Item 10-2 was calculated to have a total burn time between approximately 7.5 and 12.5 seconds.

#### Enhancements:

Also present in Item 10 is a tan colored length of string/twine tied around the pipe nipple. Tied to the string/twine are nine (9) ball-shaped metallic fishing weights and eight (8) jighead fishing hooks. The ball-shaped weights measured approximately 0.53 inch in diameter. The metallic ball-shaped portion of the jighead fishing hooks measured approximately 0.37 inch in diameter.

Also present in Item 10-3 are thirteen (13) phillips-drive screws each measuring approximately 2.0 inches in length. A white epoxy material is adhered to the screws.



Fig.2 Item10 IED#1 with tape removed

Tape:

Present in Item 10-1 are fifteen (15) lengths of black colored tape visually consistent with electrical tape. The measured width of the tape in Item 10-1 is approximately 0.70 inch.

**Improvised Explosive Device #2***Fig.3 Item 11 IED#2 as received***Main Charge:**

Item 2 was identified as the low explosive Pyrodex. Pyrodex is a commercially available ammunition propellant. For detailed information on the chemical analysis conducted on Item 2, see the FBI Laboratory Report for Laboratory number 2016-01388-3, dated June 21, 2016, and authored by Robert Gillette. (RG)

**Main Charge Container:**

Present in Item 11 is a length of metal pipe nipple measuring approximately 4 inches long and having a nominal diameter of 1-1/4 inches. There were no manufacturer markings observed on the pipe nipple.

Present in the threaded portion of the pipe nipple is a hole measuring approximately 0.14 inch in diameter. This hole, commonly referred to as a priming hole, is a modification made to the pipe to allow for the insertion of the fusing system into the container.

Also present in Item 11 are two (2) metal end caps. One (1) end cap was received still attached to the pipe nipple. Manufacturer markings on both end caps include the symbol used by Mueller Industries and the following:

“NSF61-4”  
“1 ¼”  
“CHINA”

An off-white substance was present in the threads of Item 11. Chemical analysis of this substance revealed a combination of chemicals/elements that are found in some pipe joint compounds. For detailed information on the chemical analysis conducted on Item 11, see the

FBI Laboratory Report for Laboratory number 2016-01388-14, dated June 7, 2016, and authored by Jason D. Brewer, PhD . (JDB)

Fuzing System:

Present in Item 11-4 is a piece of green hobby fuse measuring approximately 14.5 inches in length. The purpose of hobby fuse is to initiate a low explosive main charge by transmitting a flame front down the fuse length to the low explosive main charge.

Chemical analysis on the powders removed from Item 11-4 (Item 11-4-1) identified the low explosive mixtures of potassium perchlorate (oxidizer) and a component consistent with charcoal (fuel). For detailed information on the chemical analysis conducted on Item 11-4-1, see the FBI Laboratory Report for Laboratory number 2016-01388-3, dated June 21, 2016, and authored by Robert Gillette. (RG)

Hobby fuse burns at a nominal rate of 15 to 25 seconds per foot. The length of hobby fuse in Item 11-4 was calculated to have a total burn time between approximately 18.1 and 30.2 seconds.

Enhancements:

Also present in Item 11 is a tan colored length of string/twine tied around the pipe nipple. Tied to the string/twine are ten (10) ball-shaped metallic fishing weights each measuring approximately 0.53 inch in diameter. Clamped to the string/twine are twenty-one (21) split shot fishing weights each measuring approximately 0.35 inch in diameter.



Fig.4 Item11 IED#2 with tape removed

Tape:

Present in Item 11-1 are eight (8) lengths of blue colored tape visually consistent with painter's tape. The measured width of the tape in Item 11-1 is approximately 0.95 inch.

Present in Item 11-2 is one (1) length of black colored tape visually consistent with electrical tape. The measured width of the tape in Item 11-2 is approximately 0.70 inch.

Present in Item 11-3 in one (1) length of white colored tape. The measured width of the tape in Item 11-3 is approximately 0.75 inch.

Miscellaneous:

Present in Item 11-5 is a round piece of transparent plastic film measuring approximately 1.7 inches in diameter.

**Improvised Explosive Device #3**

Fig.5 Item12 IED#3 as received

Main Charge:

Item 3 was identified as the low explosive Pyrodex. Pyrodex is a commercially available ammunition propellant. For detailed information on the chemical analysis conducted on Item 3, see the FBI Laboratory Report for Laboratory number 2016-01388-3, dated June 21, 2016, and authored by Robert Gillette. (RG)

Main Charge Container:

Present in Item 12 is a length of metal pipe nipple measuring approximately 6 inches long and having a nominal diameter of 1-1/4 inches. Manufacturer markings on the outside of the pipe nipple include the symbol used by Mueller Industries and the following:

“NSF61-4/LF”  
“CHINA”

Present in the center of the pipe nipple is a hole measuring approximately 0.19 inch in diameter. This hole, commonly referred to as a priming hole, is a modification made to the pipe to allow for the insertion of the fusing system into the container.

Also present in Item 12 are two (2) metal end caps. One (1) end cap was received still attached to the pipe nipple. Manufacturer markings on both end caps include the symbol used by Mueller Industries and the following:

“NSF61-4”  
“1 ¼”  
“CHINA”

An off-white substance was present in the threads of Item 12. Chemical analysis of this substance revealed a combination of chemicals/elements that are found in some pipe joint compounds. For detailed information on the chemical analysis conducted on Item 12, see the FBI Laboratory Report for Laboratory number 2016-01388-14, dated June 7, 2016, and authored by Jason D. Brewer, PhD . (JDB)

#### Fuzing System:

Present in Item 16 is a small length of hobby fuse cut from this device by the bomb technician. The purpose of hobby fuse is to initiate a low explosive main charge by transmitting a flame front down the fuse length to the low explosive main charge.

Chemical analysis on the powders removed from Item 16 (Item 16-1) identified the low explosive mixtures of potassium perchlorate (oxidizer) and a component consistent with charcoal (fuel). For detailed information on the chemical analysis conducted on Item 16-1, see the FBI Laboratory Report for Laboratory number 2016-01388-3, dated June 21, 2016, and authored by Robert Gillette. (RG)

An accurate burn rate for the length of hobby fuse used in the construction of IED #3 could not be determined. Only the small section removed by the bomb technician was submitted for analysis.

#### Enhancements:

Also present in Item 12 is a black colored length of string/twine tied around the pipe nipple. Tied to the string/twine are five (5) ball-shaped metallic fishing weights each measuring approximately 0.53 inch in diameter. Clamped to the string/twine are twenty-eight (28) split shot fishing weights each measuring approximately 0.30 inch in diameter.



Fig.6 Item12 IED#3 with tape removed

Tape:

Present in Item 12-1 are three (3) lengths of black colored tape visually consistent with electrical tape. The measured width of the tape in Item 12-1 is approximately 0.70 inch.

**Improvised Explosive Device #4**



Fig.7 Item13 IED#4 as received

Main Charge:

Item 4 was identified as the low explosive Pyrodex. Pyrodex is a commercially available ammunition propellant. For detailed information on the chemical analysis conducted on Item 4, see the FBI Laboratory Report for Laboratory number 2016-01388-3, dated June 21, 2016, and authored by Robert Gillette. (RG)

Main Charge Container:

Present in Item 13 is a length of metal pipe nipple measuring approximately 3-1/2 inches long and having a nominal diameter of 3/4 inch. Manufacturer markings on the outside of the pipe nipple include the symbol used by Mueller Industries and the following:

“NSF61-4/LF”  
“CHINA”

Present in the threaded portion of the pipe nipple is a hole measuring approximately 0.12 inch in diameter. This hole, commonly referred to as a priming hole, is a modification made to the pipe to allow for the insertion of the fusing system into the container.

Also present in Item 13 are two (2) metal end caps. One (1) end cap was received still attached to the pipe nipple. Manufacturer markings on both end caps include the symbol used by Mueller Industries and the following:

“3/4”  
“CHINA”

An off-white substance was present in the threads of Item 13. Chemical analysis of this substance revealed a combination of chemicals/elements that are found in some pipe joint compounds. For detailed information on the chemical analysis conducted on Item 13, see the FBI Laboratory Report for Laboratory number 2016-01388-14, dated June 7, 2016, and authored by Jason D. Brewer, PhD . (JDB)

Fuzing System:

Present in Item 13-2 is a piece of green hobby fuse measuring approximately 1-1/16 inches in length. Present in Item 17 is a small length of hobby fuse cut from this device by the bomb technician. The purpose of hobby fuse is to initiate a low explosive main charge by transmitting a flame front down the fuse length to the low explosive main charge.

Chemical analysis on the powders removed from Items 13-2 and 17 (Items 13-2-1 and 17-1 respectively) identified the low explosive mixtures of potassium perchlorate (oxidizer) and a component consistent with charcoal (fuel). For detailed information on the chemical analysis conducted on Items 13-2-1 and 17-1, see the FBI Laboratory Report for Laboratory number 2016-01388-3, dated June 21, 2016, and authored by Robert Gillette. (RG)

An accurate burn rate for the length of hobby fuse used in the construction of IED #3 could not be determined due to the small length that was recovered from the device after the render-safe procedure.

Tape:

Present in Item 13-1 are seven (7) lengths of black colored tape visually consistent with electrical tape. The measured width of the tape in Item 13-1 is approximately 0.70 inch.

Miscellaneous:

Present in Item 13-3 is one (1) piece of a paper towel. The paper towel is white in color with a floral design on one side.

Present in Item 13 are eight (8) metal spheres each measuring approximately 0.11 inch. The presence of these items were likely a result of the render-safe technique utilized by the bomb technician.

**Methods:**

The methods utilized during the analysis of the specimens included examination of photographs, visual inspection, physical measurements, comparisons of observable physical characteristics, and review of references.

**Interpretations and Limitations:**

Due to the absence or alterations of specific manufacturer or other unique markings on items of evidence, conclusive identification of the source of an item may not always be effected in every case. Conclusive determinations of the exact design and functioning of a rendered safe or disassembled improvised explosive device may not be effected in every case due to the condition of the components.

**Remarks:**

For questions about the content of this report, please contact Forensic Examiner Travis McCrady at (703)632-7654.

Non-hazardous evidence will be returned under separate cover. Items 1 through 4, 10-2, 15-1, 11-4, 16, 13-2, and 17 will be maintained in the Explosives Unit until it has been deemed appropriate by the case agent to destroy these items. An EC or lead is requested for their destruction.

This report contains the opinions and interpretations of the issuing examiner(s) and is supported by records retained in the FBI files.

The work described in this report was conducted at the Quantico Laboratory.

Travis McCrady  
Explosives Unit